

## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1. (previously presented) A hybrid antigen comprising at least one antigenic domain of an infectious agent or tumor antigen, at least one binding domain that non-covalently binds to a heat shock protein, and at least one peptide linker there between consisting of Phe Phe Arg Lys (SEQ ID NO:699).
2. (previously presented) A composition comprising at least one hybrid antigen of Claim 1 and a pharmaceutically acceptable carrier.
3. (previously presented) A composition comprising a non-covalent complex of at least one hybrid antigen of Claim 1 and at least one said heat shock protein; and a pharmaceutically acceptable carrier.
4. (previously presented) The composition of Claim 3 wherein the at least one said heat shock protein is a hsp70 family member.
5. (withdrawn) A method for inducing an immune response in a subject to an infectious agent comprising administering to the subject at least one hybrid antigen of Claim 1, wherein said at least one hybrid antigen comprises at least one antigenic domain of said infectious agent.
6. (withdrawn) A method for inducing an immune response in a subject to an infectious agent comprising administering to the subject a complex of:
  - (a) at least one hybrid antigen of Claim 1, wherein said at least one hybrid antigen comprises at least one antigenic domain of said infectious agent; and
  - (b) at least one said heat shock protein;wherein the hybrid antigen and the at least one said heat shock protein are non-covalently bound.
7. (withdrawn) The method of Claim 6 wherein the at least one said heat shock protein is a hsp70 family member.

8. (withdrawn) A method for treating an infectious disease comprising administering to a subject having an infectious disease at least one hybrid antigen of Claim 1, which said at least one hybrid antigen comprises at least one antigenic domain of an infectious agent, and wherein said infectious agent causes said infectious disease.
9. (withdrawn) A method for treating an infectious disease comprising administering to a subject having an infectious disease a complex of:
  - (a) at least one hybrid antigen of Claim 1, wherein said at least one hybrid antigen comprises at least one antigenic domain of an infectious agent, and wherein said infectious agent causes said infectious disease; and
  - (b) at least one said heat shock protein;wherein the hybrid antigen and the at least one said heat shock protein are non-covalently bound.
10. (withdrawn) The method of Claim 9 wherein the at least one said heat shock protein is a hsp70 family member.
11. (currently amended) A hybrid antigen consisting essentially of at least one antigenic domain of an infectious agent or tumor antigen, at least one binding domain that non-covalently binds to a heat shock protein, and at least one peptide linker there between, wherein said peptide linker ~~consisting~~ consists of Phe Phe Arg Lys (SEQ ID NO:699).
12. (previously presented) A composition comprising at least one hybrid antigen of Claim 11, and a pharmaceutically acceptable carrier.
13. (currently amended) A composition comprising a complex of at least one hybrid antigen of Claim 11 and at least one said heat shock protein; and a pharmaceutically acceptable carrier.
14. (previously presented) The composition of Claim 13 wherein the at least one said heat shock protein is a hsp70 family member.
15. (withdrawn) A method for inducing an immune response in a subject to an infectious agent comprising administering to the subject at least one hybrid antigen of Claim 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of said infectious agent.

16. (withdrawn) A method for inducing an immune response in a subject to an infectious agent comprising administering to the subject a complex of:
- (a) at least one hybrid antigen of Claim 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of said infectious agent; and
  - (b) at least one said heat shock protein;
- wherein the hybrid antigen and the at least one said heat shock protein are non-covalently bound.
17. (withdrawn) The method of Claim 16 wherein the at least one said heat shock protein is a hsp70 family member.
18. (withdrawn) A method for treating an infectious disease comprising administering to a subject having an infectious disease at least one hybrid antigen of Claim 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of an infectious agent, and wherein said infectious agent causes said infectious disease.
19. (withdrawn) A method for treating an infectious disease comprising administering to a subject having an infectious disease a complex of:
- (a) at least one hybrid antigen of Claim 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of an infectious agent, and wherein said infectious agent causes said infectious disease; and
  - (b) at least one said heat shock protein;
- wherein the hybrid antigen and the at least one said heat shock protein are non-covalently bound.
20. (withdrawn) The method of Claim 19 wherein the at least one said heat shock protein is a hsp70 family member.
21. (cancelled).
22. (withdrawn) A method for inducing an immune response in a subject to a tumor antigen comprising administering to the subject at least one hybrid antigen of Claim 1 or 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of said tumor antigen.

23. (withdrawn) A method for inducing an immune response in a subject to a tumor antigen comprising administering to a subject a complex of:
- (a) at least one hybrid antigen of Claim 1 or 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of said tumor antigen; and
  - (b) at least one said heat shock protein;
- wherein the hybrid antigen and the at least one said heat shock protein are non-covalently bound.
24. (withdrawn) The method of Claim 23 wherein the at least one said heat shock protein is a hsp70 family member.
25. (withdrawn) A method for treating cancer comprising administering to a subject having a cancer at least one hybrid antigen of Claim 1 or 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of said tumor antigen, and wherein said tumor antigen is associated with said cancer.
26. (withdrawn) A method for treating cancer comprising administering to a subject having a cancer a complex of:
- (a) at least one hybrid antigen of Claim 1 or 11, wherein said at least one hybrid antigen comprises at least one antigenic domain of said tumor antigen, and wherein said tumor antigen is associated with said cancer; and
  - (b) at least one said heat shock protein;
- wherein the hybrid antigen and the at least one said heat shock protein are non-covalently bound.
27. (withdrawn) The method of Claim 26 wherein the at least one said heat shock protein is a hsp70 family member.
28. (previously presented) The hybrid antigen of Claim 1 or 11, wherein said hybrid antigen is in the range of 10-500 amino acids.
29. (previously presented) The hybrid antigen of Claim 1 or 11, wherein said antigenic domain is of an infectious agent.
30. (withdrawn) The hybrid antigen of Claim 1 or 11, wherein said antigenic domain is of a tumor antigen associated with a cancer.

31. (withdrawn) The hybrid antigen of Claim 30, wherein the cancer is selected from the group consisting of sarcoma, lymphoma, leukemia, melanoma, carcinoma of the breast, carcinoma of the prostate, ovarian carcinoma, carcinoma of the cervix, uterine carcinoma, colon carcinoma, carcinoma of the lung, glioblastoma, and astrocytoma.
32. (previously presented) The hybrid antigen of Claim 29, wherein the infectious agent is selected from the group consisting of a bacterium, a virus, a protozoan, a mycoplasma, a fungus, a yeast, a parasite, and a prion.
33. (withdrawn) The hybrid antigen of Claim 32, wherein the infectious agent is a bacterium.
34. (withdrawn) The hybrid antigen of Claim 33, wherein the bacterium is selected from the group consisting of *Salmonella*, *Staphylococcus*, *Streptococcus*, *Enterococcus*, *Clostridium*, *Escherichia*, *Klebsiella*, *Vibrio*, *Mycobacterium*, and *Mycoplasma pneumoniae*.
35. (previously presented) The hybrid antigen of Claim 32, wherein the infectious agent is a virus.
36. (previously presented) The hybrid antigen of Claim 35, wherein the virus is selected from the group consisting of a human papilloma virus, herpes virus, retrovirus, hepatitis virus, influenza virus, rhinovirus, respiratory syncytial virus, cytomegalovirus, adenovirus, herpes simplex virus, herpes zoster virus, human immunodeficiency virus 1, and human immunodeficiency virus 2.
37. (withdrawn) The hybrid antigen of Claim 32, wherein the infectious agent is a protozoan.
38. (withdrawn) The hybrid antigen of Claim 37, wherein the protozoan is selected from the group consisting of an amoeba, a malarial parasite, or *Trypanosoma cruzi*.
39. (previously presented) The composition of Claim 4 or 14, wherein the hsp70 family member is BiP, hsp70 or hsc70.
40. (previously presented) The composition of Claim 3 or 13 further comprising one or more adjuvants.

41. (previously presented) The composition of Claim 4 or 14 further comprising one or more adjuvants.
42. (previously presented) A composition comprising a plurality of the hybrid antigen of Claim 1 or 11.
43. (previously presented) The composition of claim 42 further comprising a plurality of heat shock proteins non-covalently complexed to the hybrid antigens.
44. (previously presented) The method of claim 5, 6, 15 or 16 wherein the subject is a human.
45. (previously presented) The method of claim 22 wherein the subject is a human.
46. (previously presented) The method of claim 23 wherein the subject is a human.
47. (new) The composition of claim 3 or 13, wherein the at least one said heat shock protein is gp96, hsp60, hsp40 or hsp90.
48. (new) The hybrid antigen of claim 1 or 11, which comprises at least two antigenic domains, wherein each of said at least two antigenic domains is separated by a second peptide linker, and wherein each said second peptide linker is independently selected from the group consisting of Phe Phe Arg Lys (SEQ ID NO:699); Phe Arg Lys; Phe Arg Lys Asn (SEQ ID NO:701); Arg Lys Asn; Phe Phe Arg Lys Asn (SEQ ID NO:702); Phe Arg; Gln Leu Lys; Gln Leu Glu; Lys Asn; Arg Lys; and AA<sub>1</sub>-AA<sub>2</sub>-AA<sub>3</sub>-leucine (SEQ ID NO:9), wherein AA<sub>1</sub> is Ala, Ser, Val, Glu, Gly, Leu, or Lys, AA<sub>2</sub> is Lys, Val, or Glu, and AA<sub>3</sub> is Val, Ser, Phe, Lys, Ala, Glu, or Thr.
49. (new) The hybrid antigen of claim 1 or 11, which comprises two antigenic domains separated by a second peptide linker, wherein said second peptide linker is selected from the group consisting of Phe Phe Arg Lys (SEQ ID NO:699); Phe Arg Lys; Phe Arg Lys Asn (SEQ ID NO:701); Arg Lys Asn; Phe Phe Arg Lys Asn (SEQ ID NO:702); Phe Arg; Gln Leu Lys; Gln Leu Glu; Lys Asn; Arg Lys; and AA<sub>1</sub>-AA<sub>2</sub>-AA<sub>3</sub>-leucine (SEQ ID NO:9), wherein AA<sub>1</sub> is Ala, Ser, Val, Glu, Gly, Leu, or Lys, AA<sub>2</sub> is Lys, Val, or Glu, and AA<sub>3</sub> is Val, Ser, Phe, Lys, Ala, Glu, or Thr.

50. (new) The hybrid antigen of claim 48, wherein at least one of the second peptide linker is Phe Phe Arg Lys (SEQ ID NO:699).

51. (new) The hybrid antigen of claim 49, wherein the second peptide linker is Phe Phe Arg Lys (SEQ ID NO:699).